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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/830,625	04/27/2001	Gerhard Schmitz	4125/PCT	1856

21553 7590 05/29/2003

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EXAMINER

BRUENJES, CHRISTOPHER P

ART UNIT	PAPER NUMBER
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1772

10

DATE MAILED: 05/29/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/830,625

Applicant(s)

SCHMITZ ET AL.

Examiner

Christopher P Bruenjes

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 April 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 April 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

Drawings

1. The corrected or substitute drawings were received on April 8, 2003. These drawings are accepted.

WITHDRAWN REJECTIONS

2. The objections to the drawings, abstract and specification and the 35 U.S.C. 112 rejections of claims 1-5 and 13-19 of record in Paper #5, Pages 2-15 Paragraphs 1-6 have been withdrawn due to Applicant's amendments in Paper #7-9.
3. The 35 U.S.C. 102 rejections of claims 1-5, 15, and 18 as anticipated by Norvell of record in Paper #5, Pages 15-16 Paragraph 7 have been withdrawn due to Applicant's amendments in Paper #8.
4. The 35 U.S.C. 103 rejections of claims 13-14, 16, and 19 over Norvell in view of White et al of record in Paper #5, Pages 17-19 Paragraph 8 have been withdrawn due to Applicant's amendments in Paper #8.

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5. The 35 U.S.C. 103 rejection of claim 17 over Norvell in view of Stahlke et al of record in Paper #5, Pages 19-20 Paragraph 9 have been withdrawn due to Applicant's amendments in Paper #8.

NEW REJECTIONS

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 21-44 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The claimed subject matter of a selectively permeable film, which has a different diffusion resistance in opposite directions through the film is not described in a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention. The

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disclosure does not explain what the structure or chemical composition of the film is that enables the film to hinder the diffusion of water vapor into the packet but allow the water vapor to diffuse freely in the opposite direction. The state of the art does not help teach one of ordinary skill in the art how the film is made, and therefore for enablement purposes the film must be described in the disclosure.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claim 44 is rejected under 35 U.S.C. 102(b) as being anticipated by Norvell (USPN 5,472,760).

Norvell anticipates in an aircraft including an outer skin, an inner trim component that is arranged spaced from said outer skin with an interspace there between and that bounds an interior cabin therein, an insulation arrangement including an insulation packet disposed in said interspace (Fig. 1). The insulation packet comprises an insulation material and a film

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that completely surrounds and encases said insulation material that is formed completely of a permeable film, partially a permeable film and a semi-permeable film, or partially a permeable film and an impermeable barrier film (col.3, 1.50-53 and col.5, 1.55-63 and col.6, 1.50-60). One embodiment taught by Norvell is having a film comprising two films, a permeable film and a water vapor barrier film, in which the water vapor barrier film is oriented toward either the inner cabin or the outer skin of the aircraft depending on the intended use of the insulation packet.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

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1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 20-27, 30-41, and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Norvell (USPN 5,472,760) in view of White et al (USPN 5,398,889).

Norvell teaches an insulation packet surrounded by a permeable film that allows water vapor in the air within the interior of the vehicle to pass into and out of the insulation package (col.4, 1.20-25). The film surrounding the insulation may also include portions that are semi-permeable or impermeable oriented toward the inner cabin or outer skin of the aircraft depending on the intended use and results of the insulation packet. Films containing portions that are permeable, semi-permeable or impermeable obviously have different diffusion resistance. Norvell fails to teach a stringer in the insulation arrangement or that the film has a higher diffusion resistance with respect to water vapor diffusing through said film inwardly into said insulation packet than outwardly. However, White et al teach that stringers are added to air vehicles in order to provide strength for many forms of loading by providing bending and buckling stiffness for skin (col.4, 1.63-68). White et al

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also teach that the stringers have a number of holes through them spaced along its length to allow flow of condensate downwardly along the inside surface of the skin (col.5, 1.1-5). Structurally holes through supports for a stringer are the same thing as a plurality of spacer members supporting a stringer. The stringers form integrally with the outer skin, therefore it would have been obvious to one skilled in the art that the insulation packet would have to lay on the stringers if attached to the outer skin. One of ordinary skill in the art would have recognized that an air vehicle would have stringers with gaps between the stringer and outer skin in order to provide the air vehicle with added strength by providing bending and buckling stiffness and the gaps would be formed in order to allow condensate to flow down along the inside surface of the outer skin as taught by White et al. One of ordinary skill in the art would have also recognized that the insulation packet would lay on the stringers because it was attached to the outer skin and the stringers and skin are integrally formed leaving no where else for the insulation packet.

Further, White et al also teach an air conditioning device used to further dry the insulation packet (col.3, 1.30-32). The air conditioning devices produce drier air than the air containing water vapor within the packet, therefore by the laws

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of thermodynamics the water vapor inside the packet is going to diffuse through the permeable film outwardly from the packet in order to equalize the moisture in the air on the inside and outside of the permeable film. Because the circulating air remains drier than the air within the packet the diffusion resistance is greater flowing into the packet than out of the packet. Also because the insulation packet is placed on the stringers as taught by White et al the drier circulated air surrounds the entire packet and therefore the diffusion resistance is uniform at all locations on the film.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to add a stringer to the air vehicle of Norvell with an air gap formed between the stringer and outer skin and lay the insulation packet of Norvell on the stringer in order to provide the air vehicle with more strength, the condensate a way to flow down the outer skin, as taught by White et al, and lay the insulation packet the only place possible when it is attached to the outer skin of the air vehicle. Additionally it would have been obvious to one having ordinary skill in the art at the time the applicant's invention was made to provide an air conditioning device that circulates dry air, as taught by White et al, to the air vehicle of Norvell, in order to increase vapor

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drying of the insulation packet. The circulating dry air as taught by White et al enables the permeable film to have a higher diffusion resistance with regard to water vapor inwardly into the insulation packet than outwardly from the insulation packet based on the laws of thermodynamics and osmosis which are well known to one skill in the art.

9. Claims 28-29 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Norvell in view of White et al as applied to claims 21 and 31 above, and further in view of Stahlke et al.

Norvell and White et al teach all that is claimed in claims 21 and 31 and the insulation packet comprises insulation surrounded by a film. Norvell also teaches that the insulation material is constructed from any material used in vehicle insulation, but fails to teach using polyphenylene sulfide as the insulation material. However, Stahlke et al teach uses of polyphenylene sulfide in the form of structural foam (col.1, 1.1-15). The polyphenylene sulfide is used in the aviation vehicle market for thermal insulation, because it has the properties of high heat resistance, rigidity, chemical resistance, weight reduction, thermal insulation and low flammability. For air vehicle insulation, the material used

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must have weight reduction, be thermal insulating, chemical resistant, especially towards absorption of water, and low flammability, which is very important in air vehicles. One of ordinary skill in the art would have recognized that polyphenylene sulfide is used as the insulation material in air vehicles because it has low flammability, chemical resistance, weight reduction, and thermal insulation, as taught by Stahlke et al, which are all properties that enhance the safety and economics of an air vehicle.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to use polyphenylene sulfide as the insulation material, in the insulation packet of Norvell and White et al, in order to enhance the safety and economics of an air vehicle based on the properties of polyphenylene sulfide which include low flammability, chemical resistance, weight reduction, and thermal insulation as taught by Stahlke et al.

ANSWERS TO APPLICANT'S ARGUMENTS

10. Applicant's arguments filed in Paper #8 regarding the objections to the drawings, abstract and specification and the 35 U.S.C. 112 rejections of record have been considered but are moot since the rejections have been withdrawn.

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11. Applicant's arguments filed in Paper #8 regarding the 35 U.S.C. 102 and 103 rejections of claims 1-5 and 13-19 of record have been considered but are moot since the rejections have been withdrawn, however some of the arguments pertain to the new claims and rejections.

In response to the applicant's argument that any of the three references, Norvell, White et al, or Stahlke et al teach alone or in combination a directionally selective preamble film, applicant is directed to the new 35 U.S.C. 103 rejection of Norvell in view of White et al.

In response to the applicant's argument that Norvell teaches only that the exterior film is a thin impermeable vapor barrier film and the inner film is a thicker breathable film, the disclosure that the exterior and interior films are arranged in the opposite order for some uses, does not proscribe only uses that are not for aircraft. On the other hand, some uses includes other uses and intended results of the insulation packet within the aircraft such as described in White et al in which the permeable film would be required on the exterior surface so that the water vapor would pass out of the packet towards the outer skin of the aircraft in order for condensate to fall along the inner surface of the outer skin to a reserve

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in the bottom of the aircraft. Additionally, Norvell teaches that one or more layers of permeable, semi-permeable, or impermeable barrier material may also be included to impart other specific characteristics to the insulation package (col.6, 1.57-60), and one having ordinary skill in the art would have recognized that in order to fulfill the objective of Norvell and White et al of venting moisture out of the insulation packet the outer film would be either permeable, semi-permeable, or impermeable as taught by Norvell.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. May et al (USPN 6,325,272); Kusters et al (USPN 6,027,546); and Duhaut et al (US 2002/0124431) each teach that a specific external factor is needed in order to provide a film having two different diffusion factors for the same gas or water vapor.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher P Bruenjes whose telephone number is 703-305-3440. The examiner can normally be reached on Monday thru Friday from 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon can be reached on 703-308-4251. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Christopher P Bruenjes

Examiner

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CPB

May 16, 2003

Chris Bruenjes

[Signature]
HAROLD PYEN
SUPERVISORY PATENT EXAMINER
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5/27/03